

Understanding Traumatic Brain Injury (TBI)

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Session agenda

- **What is TBI?**
- **How does it occur?**
- **Who typically experiences a TBI?**
- **How does a normal brain function?**
- **What changes emerge after a TBI?**

Learning Objectives

- Become aware of how a traumatic brain injury is defined.
- Be aware of the causes of traumatic brain injury in the domestic violence population.
- Understand how brain injury is classified.
- Understand why there is a risk for a second brain injury after the first and the subsequent impact on functioning.
- Understand what happens when the brain is injured.
- Understand the functions of the different lobes of the brain.
- Be aware of the most common physical, emotional, and cognitive problems after a brain injury well as long term challenges.

Traumatic Brain Injury is...

- injury to the head from a blunt or penetrating object
- injury from rapid movement of the head that causes back and forth movement inside the skull



Traumatic Brain Injury Is **Not**...

- A new onset mental disorder
- Just emotional stress
- An acquired mental retardation
- The effects of prolonged drug/alcohol abuse



Brain Injury is the “Silent Epidemic”

**TBI is an
unrecognized
major public
health problem**



Why is TBI a “Silent Epidemic”?

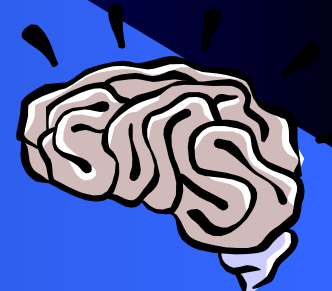
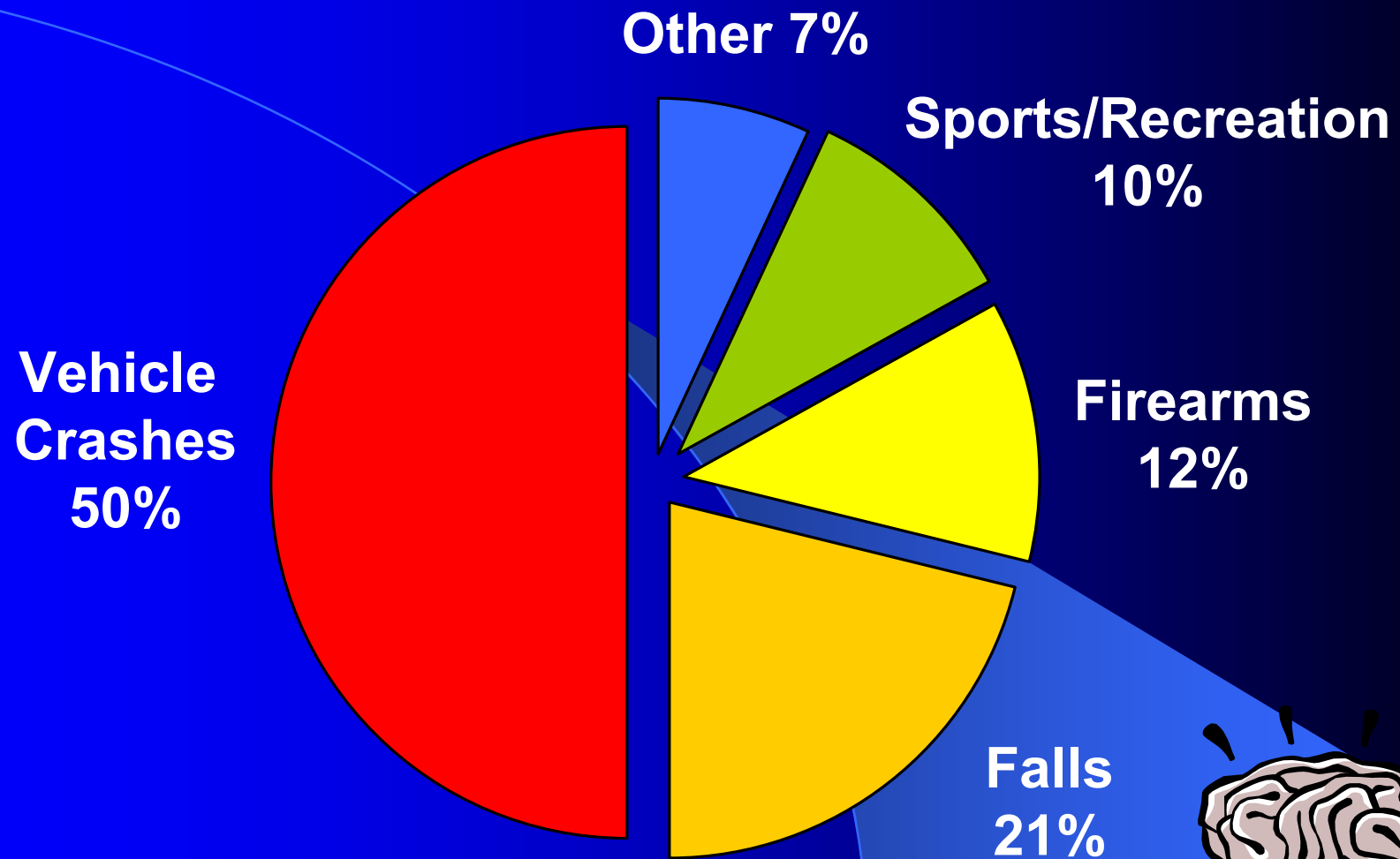
- Most individuals don't know about brain injury, let alone its consequences or impact on behavior
- Minor blows to the head or “concussions” are often **not** perceived as “brain injuries”, yet 15% of these individuals will have chronic problems post injury
- Most people assume one needs to lose consciousness to have a brain injury

Scope of the Problem

- An estimated 5.3 million Americans –more than 2% of the population – currently live with identified disabilities caused by TBI
- 2 million people sustain a brain injury every year
- Every 15 seconds someone sustains a TBI
- Leading cause of death until age 44
- 4th leading cause of death overall
- Each day 5,500 individuals sustain a TBI



Causes of TBI General Population



Causes of TBI In DV Populations

**Blow to the head
with any object**

**Strenuous
shaking of
body**

**Falling and
hitting your
head**

Strangled

Near drowning

**Pushed
against the
wall or other
solid object**

Punched in the face

Use of firearms



TBI Ages

Population incidence of 100/100,000

- Peaks at below 5 years, 15-24 yrs, +70 yrs
- Maximum peaks are:
 - ❖ 133/100,000 in the 15-24 years age group
 - ❖ 165/100,000 in the 65+ years age group

TBI Gender

Males are two times more likely than females to sustain a brain injury.

The highest rate of injury is for males age 15-24.

Severity of TBI

Moderate to Severe

- 15% of all TBIs
- Typically hospitalized
- “Identified as a TBI”
- Known and followed by medical community

Mild

- 85% of all TBIs
- Seen ER or MD office
- “Identified as a concussion”
- Not followed by medical community in many cases

Moderate to Severe TBI

- Documented loss of consciousness
- Potential skull fractures
- Significant period (days to weeks) of coma
- Significant loss of information for a period of time post event
- Significant and chronic thinking, physical and emotional changes

Mild TBI/Concussion

- Headaches
- Dizziness
- Slowed processing
- Forgetfulness
- Fatigue
- Sensitivity to noise and lights



Mild TBI/Concussion

- 85% have full recovery within 3-6 months post event
- 15% experience chronic symptoms which significantly interfere with their daily functioning

Mild TBI

- An unknown number of individuals fail to seek any medical attention
 - Domestic violence
 - Bar room brawls
 - Child abuse/shaken baby syndrome
 - Sports injuries
- These MTBIs remain unidentified

Risk of Repeat Brain Injuries

- After 1st TBI, risk of second injury is 3 times greater
- After 2nd, risk of third injury is 8 times greater



In victims of DV, the most common target of abuse is the head region.

Thus, the risk of multiple TBIs in clients with DV is even higher!

Head is hit the first time



Head hit a Second time

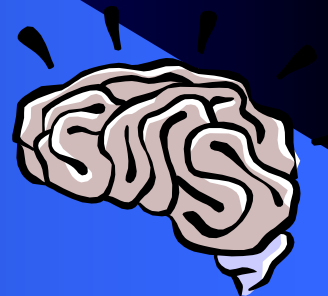


Each time the head is hit, injuries accummulate

**AS HEAD INJURIES
ACCUMULATE...**

symptoms increase

**How does a normal brain
function?**





How the brain works...

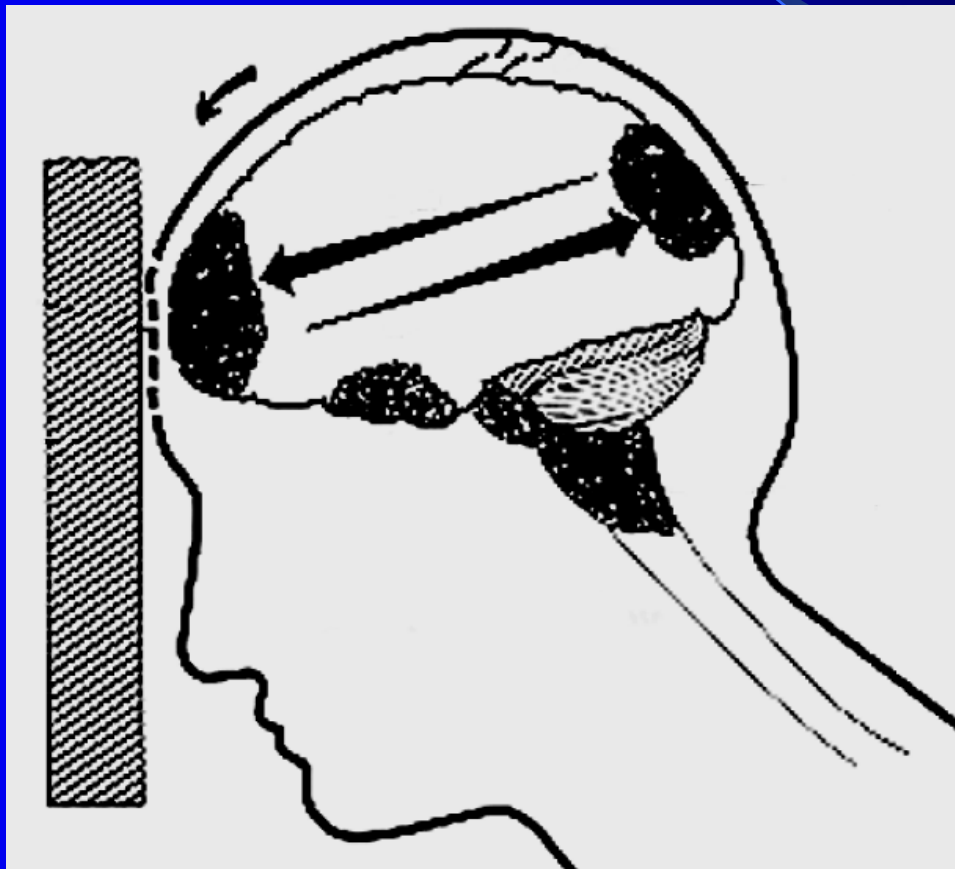


How the brain might look **after** a TBI...

Mechanism of Damage

- Brain = Consistency of “jello”
- Bruising of the brain due to forward/backward movement against skull
- Twisting of nerve fibers due to twisting of brain within skull
- Nerve fibers are broken or stretched = temporary or permanent brain damage

Mechanism of Brain Damage

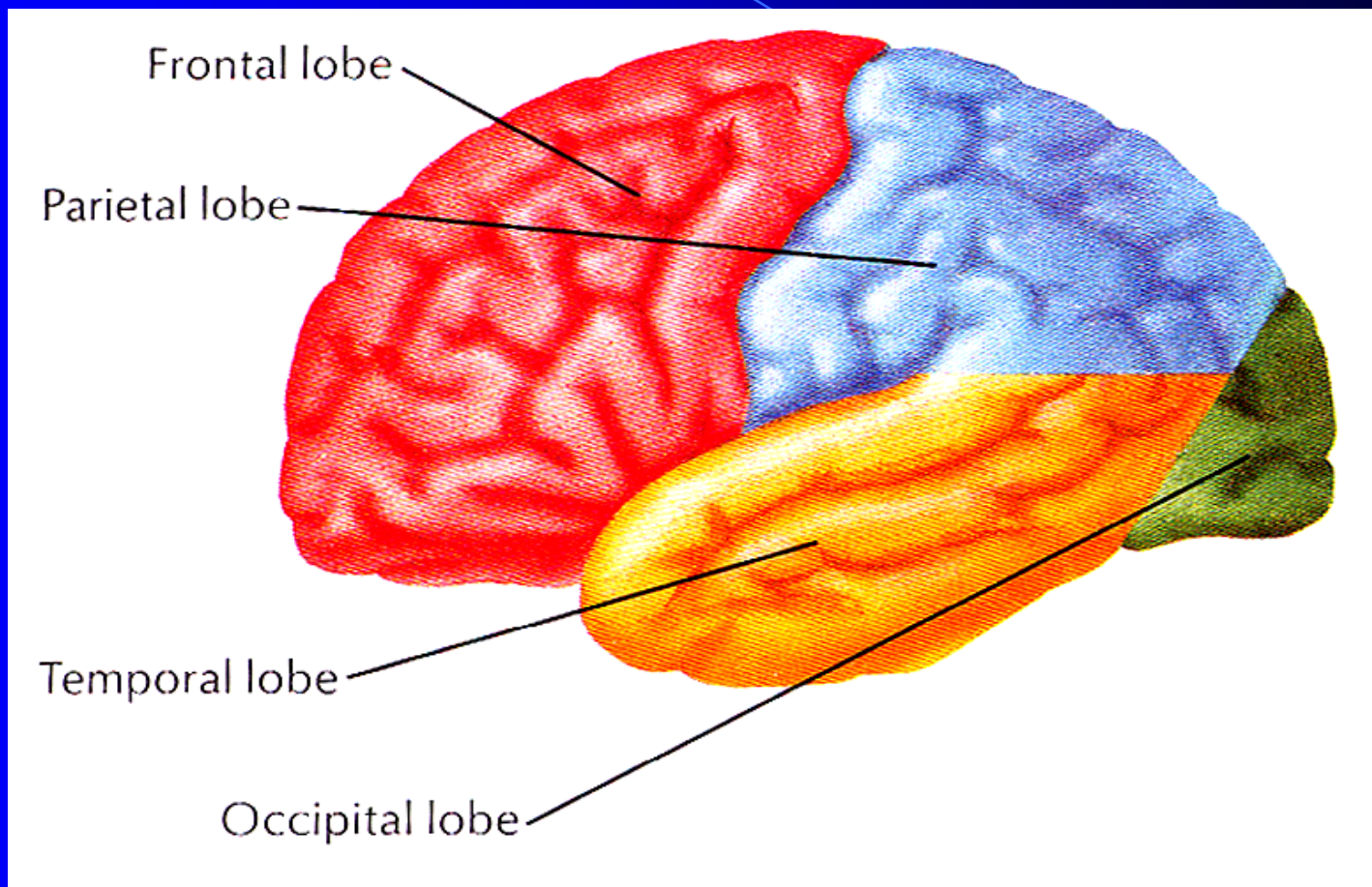


Changes after a Brain Injury

A brain injury affects who we are, the way we think, act and feel. It changes everything about ourselves in a matter of seconds.



Areas of the Brain



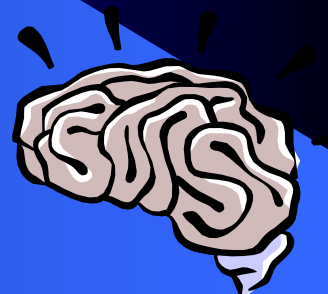
Lobes of the Brain: Frontal, Temporal, Parietal, Occipital

What happens in a TBI ?

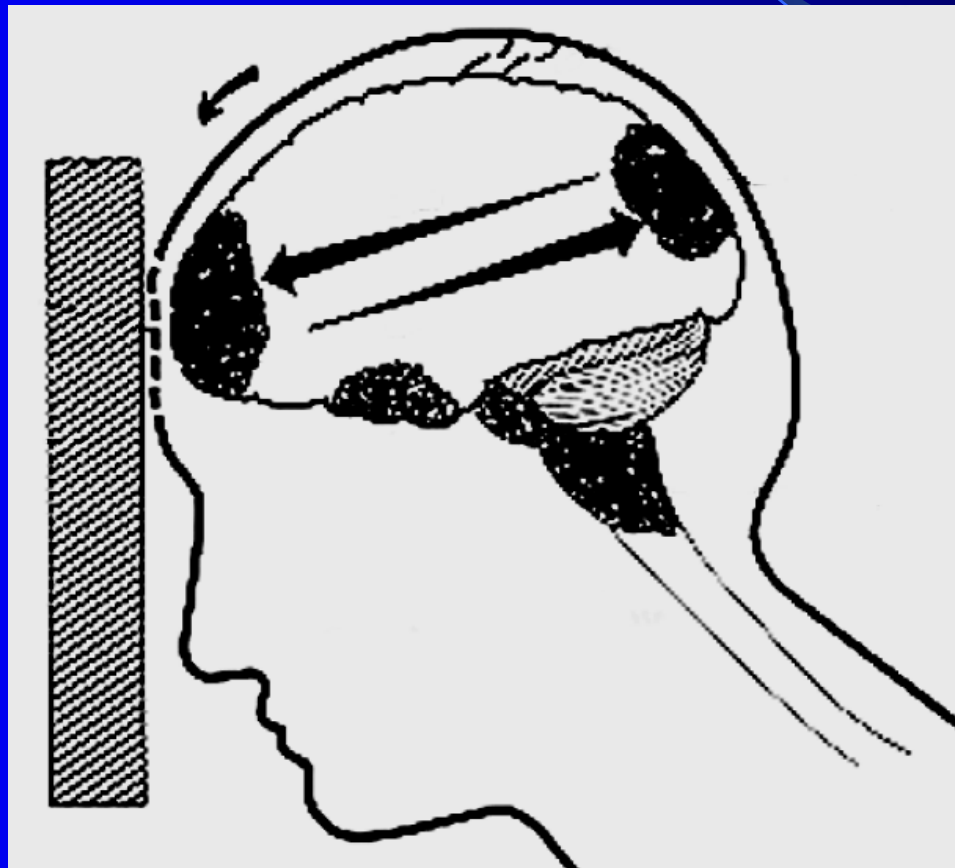
- Nerve fibers within specific areas of the brain are severed...never to be regained
- Nerve fibers are stretched...resulting in inefficient and slowed functioning
- Onset of physical, cognitive and behavioral changes after the TBI reflect impaired functioning due to these broken or stretched nerve fibers



**In TBI, there is preferentially
greater damage to the
frontal and temporal lobes
of the brain**



Mechanism of Brain Damage



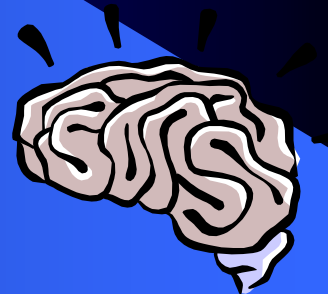
Frontal Lobe Functions

- **Planning/anticipation/initiation**
- **Problem solving/judgement**
- **Awareness**
- **Mental flexibility**
- **Ability to inhibit responses**
- **Personality/ emotions**

Temporal Lobe Functions

- **Memory and learning**
- **Organizing and sequencing**
- **Hearing**
- **Understanding language**

**What are the most
common problems
after a TBI?**



Physical Problems

- Overall slowing
- Clumsiness
- Decreased vision/hearing/smell
- Dizziness
- Headaches
- Fatigue
- Increased sensitivity to noise/bright lights



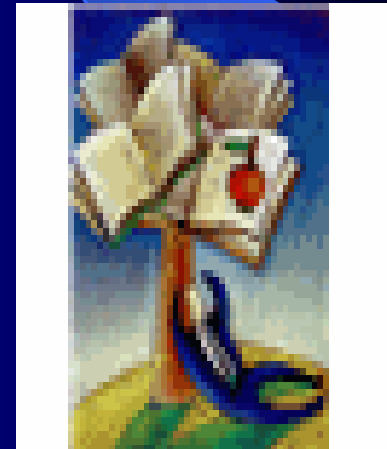
Thinking Changes

➤ Attention

- Reduced concentration
- Reduced visual attention
- Inability to divide attention between competing tasks

➤ Processing speed

- Slow thinking
- Slow reading
- Slow verbal and written responses



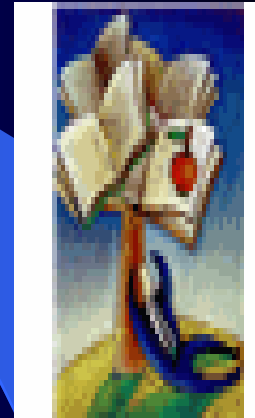
Thinking Changes

➤ Communication

- Difficulty finding the right words, naming objects
- Disorganized in communication

➤ Learning and Memory

- Information before TBI intact
- Reduced ability to remember new information
- Problems with learning new skills



Thinking Changes in “Executive Functioning”

**Difficulty
planning/
setting goals**

**Problems
being
organized**

**Difficulty
being
flexible**



**Difficulty
problem solving**

**Difficulty
prioritizing**

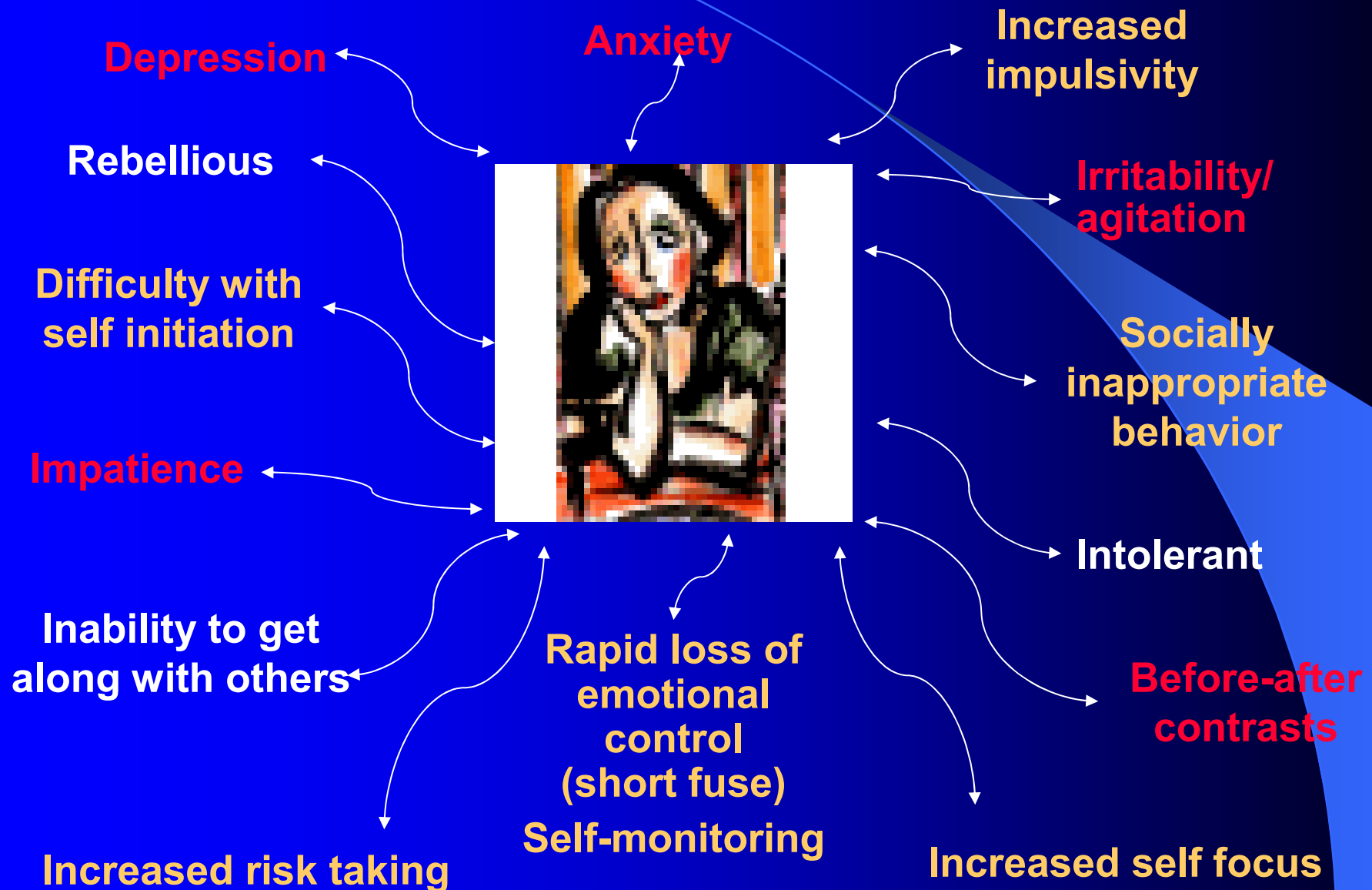
**Decreased
awareness of
thinking changes
in self**

Combined, TBI changes result in clients ...

- **having difficulty remembering or learning new information**
- **being inconsistent in their performance**
- **having poor judgment and decision making abilities**
- **having difficulty generalizing to new situations**
- **lacking awareness of these difficulties**



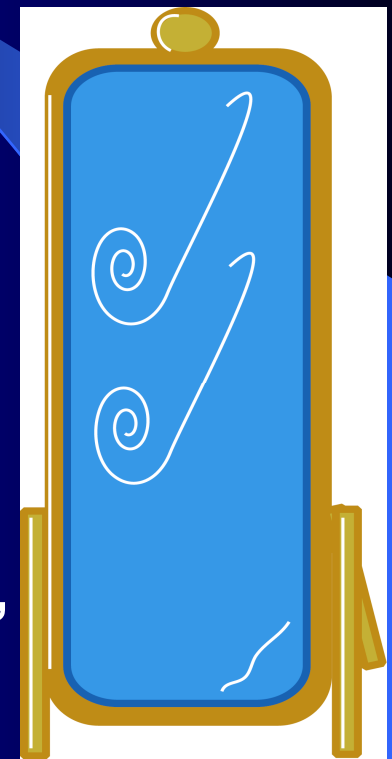
Emotional/Behavioral/Social Changes



Changes after a Brain Injury

The most important things to remember:

- No two brain injuries are exactly the same
- The effects of a brain injury depend on such factors as cause, location and severity
- Adjustment dependent on “before-after” changes in the person



Long Term Challenges Post TBI

- Vocational and/or school failure
- Family life/social relationships collapse
- Increased financial burden on families and social service systems
- Alcohol and drug abuse
- Chronic depression/anxiety



Thus, TBI results in
significant additional
challenges for individuals
with DV

